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THE SUMMER BIRDS OF THE ST. MATTHEW ISLAND
BIRD RESERVATION.

BY G. DALLAS HANNA, U. S. BUREAU OF FISHERIES.

THIS Bird Reservation, officially known as the Bering Sea Reservation, is located in Bering Sea about 220 miles north of the Pribilof Islands. It consists of three islands, which named in order of size are St. Matthew, Hall and Pinnacle Islands. These were made a bird reservation by Executive Order of February 27, 1909. Owing to the distance of the group from the regular channels of travel, opportunities for naturalists to visit it rarely occur. It is barren, treeless, uninhabited and surrounded by dangerous and poorly charted waters.

Through a request of the Biological Survey of the Department of Agriculture I was detailed to make an examination of the Reservation in June 1916, but owing to the ice pack remaining in that vicinity until after the middle of the month this was impossible. In July, however, the trip was made, and six days were spent on St. Matthew and Hall Islands. Arrangements were made with the Coast Guard Service for transportation and we left St. Paul Island on the morning of July 7, on the Cutter *Unalga*, Captain F. G. Dodge in command. The next morning the spires of Pinnacle Island were in full view and a landing was made near Cape Upright of St. Matthew at noon. Between then and the 12th almost the whole of this island was examined, and on the 13th we went to Hall Island. Pinnacle Island was not visited on account of adverse weather conditions.

I wish to express my appreciation of the favors extended me by the Coast Guard Service and especially to Captain Dodge and the crew of the *Unalga*, every man of whom willingly and eagerly assisted me on every occasion.

St. Matthew Island is about 22 miles long by two to three miles wide and is slightly curved to the north. Its mountains rise as high as 1800 feet and are weather worn and smoothly eroded in most cases. Some of them have mosses and lichens growing to the tops, but others, especially in the center of the island, are entirely

devoid of vegetation. The rocks forming these latter are weathered into very small fragments, set edgewise and close together and making a natural pavement.

Most of the valleys are covered with reindeer and other mosses and in many favorable places there are true tundra bogs. Vegetation other than mosses and lichens is dwarfed and scant in most places. The rank growths of wild parsnip and wild rye found on the Pribilofs are entirely absent. There are a large number of fresh and brackish water lakes on the island, many of which have been formed by the sea building dykes across from one headland to another. The tide ebbs and flows in some of these, forming lagoons. There are a large number of fresh water streams, many of them a dozen feet across. They wind through the tundra swamps with undercut banks which form ideal spawning and feeding places for the innumerable trout found here.

The mountains are cut into by the sea on every side of the island, making long stretches of towering cliffs, between which the sea has built up beaches of such an extent as to give the impression that the island is much older than the Pribilofs. These cliffs display the most wonderful geological formations I have ever seen. There are beautiful blues, yellows, greens and bright reds in layers or dykes and in places throughout the mass run seams of pure white calcite from two to twelve inches thick.

Evidences of comparatively recent earth disturbances are seen about two miles below Cape Glory of Russia on the south side of the island. The earth and cliffs are torn and tumbled in the greatest confusion. New slides are seen and the beach line boulders are not much rounded. In some places rocks are constantly falling making it dangerous to go beneath the cliffs. Here are nodules from two inches to two feet in diameter composed of a green mineral-like jade, and there are numerous seams in the country rock of banded agate. There is one cliff half a mile long of undoubted sedimentary origin. Numerous fossilized trees some two feet in diameter are embedded near the base. All seen were in a recumbent position and were as black as anthracite coal.

The large number of cliffs with their grand scenic display are notable as the nesting places of countless sea birds. Of all the places I have visited St. Matthew is rivalled in this respect only by

that incomparable bird cliff on St. George Island, but the ledges on St. Matthew are more nearly perpendicular and thus afford less favorable nesting cites.

The lines of drift wood indicate that the island as a whole has had a recent elevation, or that some enormous seas which did not reach the Pribilofs carried the logs high above tide mark. Some logs are about 100 feet above the calm weather water line.

Hall Island is entirely bold and rugged and has no true beach. In fact the top of the island can only be reached in a few gullies where small streams empty into the sea. The vegetation and character of the upland appeared similar to St. Matthew.

Pinnacle Island is wedge shaped and has towering spires projecting high into the air. It is so steep and rugged that snow does not lie upon it. Probably the base of the cliffs might afford a landing place in calm weather but whether or not the walls of the island could be scaled was not ascertained.

The action of the ice on these islands seems inconsequential. No worn pebbles were found back of the beaches nor are there glaciers present. Snow probably remains most of the summer in some of the canyons, since it was very deep in places in early July.

Through the kindly interest of Dr. A. K. Fisher of the Biological Survey I am enabled to incorporate in the present list certain hitherto unpublished notes taken by him on these islands on July 14 and 15, 1899, while a member of the Harriman Expedition. Dr. Fisher's notes, which include four species additional to those observed by myself, are inclosed in brackets, and are followed by his initials.

LIST OF BIRDS OBSERVED.

Gavia stellata. RED-THROATED LOON.—The wailing notes of a single bird were first heard reverberating from the mountains surrounding a lake about the middle of the north shore of St. Matthew. It and two others were later collected and the species was afterwards observed in several of the lakes. It undoubtedly breeds here but efforts to locate the nests were unsuccessful.

Lunda cirrhata. TUFTED PUFFIN.—Many nesting colonies of this species were found on favorable cliffs on both the islands visited. A precipitous rock lying off the northwest end of St. Matthew was scaled and the burrows of this species found undermining the sod and moss com-

posing the summit. Some of their burrows were twenty feet long but so shallow that they could be broken open easily and often bird and egg would be found at the end. A semblance of a nest is constructed of moss and feathers in a shallow depression near the end of the burrow. These burrows are used year after year, usually with a small amount of excavating annually.

Fratercula corniculata. HORNED PUFFIN.—Horned Puffins nest in large numbers on every favorable cliff. Their grotesque heads may often be seen protruding from their burrows near the tops of the cliffs and the few feathers and moss fragments constituting the nest may be found from three to six feet back under the turf covering the top stratum of rocks. This sort of location seems to be preferred, but some nest in deep holes on the sides of the cliffs. On the Pribilof Islands both species of Puffins nest together but on St. Matthew there is much less admixture. The eggs of this species are less chalky, more inclined to be spotted with purple, and are longer than those of the Tufted Puffin.

Phalaris psittacula. PAROQUET AUKLET.—In the aggregate large numbers of this species breed on the islands. They are not usually found in colonies but single pairs nest here and there on the boldest headlands. The single egg is found in a rock crevice and is very difficult to obtain.

Æthia cristatella. CRESTED AUKLET.—Except for a large colony found on the cliffs about two miles south of Cape Glory of Russia this species is rare. It breeds in limited numbers on Hall Island and a few were seen at almost every landing on St. Matthew. They are believed to be less common than on the Pribilof Islands where they form an insignificant portion of the wonderful ornithological display.

Æthia pusilla. LEAST AUKLET.—Four flocks only of this species were seen and these in every case were feeding in the sea just off shore. It is possible a few may breed but none were seen on shore, even on beaches which seemed very favorable for them.

Cepphus columba. PIGEON GUILLEMOT.—Found casually on all cliffs where they breed high up and well protected from the foxes. While this species nests at Unalaska and at St. Matthew absolutely none stop at the Pribilofs during the summer. No plausible explanation for this peculiar distribution can be given.

Uria troille californica. CALIFORNIA MURRE.

Uria lomvia arra. PALLAS'S MURRE.—Both species of Murres are exceedingly abundant on all cliffs. On many projecting ledges they nest side by side. When sitting on their eggs they are usually very tame and this enables one to identify a particular bird before the egg is taken. Without such identification it becomes doubtful to which species an egg may belong as eggs apparently intergrade in all characters. The birds may be easily distinguished on the cliffs by color. The species first named is a dull dark bronze on the head and back, while the latter is jet black. Also the bill of the latter is shorter and thicker and it bears a long narrow white stripe below the gape in the breeding season. During the nesting

season the White Foxes live almost exclusively on Murre's eggs and they are very adept at scaling the cliffs for them. Sometimes they bury the eggs in the tundra back of the cliffs and eat them later in the year.

[*Stercorarius longicaudus*. LONG-TAILED JAEGER.—One shot on Hall Island on July 14, 1899, had a Meadow Mouse (*Microtus abbreviatus*), in its gullet, and the remains of another in the stomach. (A. K. F.)]

***Rissa tridactyla pollicaris*. PACIFIC KITTIWAKE.**—Colonies of a hundred to a thousand were found at various places on the cliffs. Substantial nests are constructed of grass and moss in places which are usually just out of reach. The smaller Red-legged Kittiwake was closely watched for but was not seen after leaving the Pribilofs.

***Larus hyperboreus*. GLAUCOUS GULL.**—This is the only member of this genus found nesting on the reservation. The Glaucous-winged Gull may occur occasionally even in mid-summer but it was not noted by me at any time after the Pribilofs were out of sight. The big white Burgomaster was constantly seen while we were about St. Matthew and Hall Islands, either scouring the beaches for carrion or hunting the cliffs for Murre's eggs. It builds its nests of matted grass and moss and keeps a very filthy house. Considerable sagacity is shown in placing the nest in an inaccessible place, usually offshore on outlying rocks which can be scaled neither by man nor fox. One of these however I was able to climb and found on top about 100 nests, one third of which were being occupied. The young, (black speckled balls of white down), were just appearing on July 10 and were just a little ahead of the cormorants. Around each nest were found quantities of the shells of Murre's eggs and the same were found in the stomachs of those birds examined.

St. Matthew Island marks the southern breeding limit of this species in the Bering Sea Islands, save for a small colony on Walrus Island of the Pribilofs, the Glaucous-winged Gull being the common breeding species of the Pribilof group. In fall and winter both species move southward and both are found on St. Paul throughout the fall. In the coldest parts of the winter the Glaucous Gull only is found there.

[*Xema sabini*. SABINE'S GULL.—Two specimens, now in the Biological Survey collection, were secured from a flock of five on July 15, 1899. They were fishing off-shore in company with *Rissa* and *Larus*. (A. K. F.)]

[*Sterna paradisæa*. ARCTIC TERN.—Observed about the islands on at least one occasion, July 14 or 15, 1899. (A. K. F.)]

***Fulmarus rogersi*. RODGER'S FULMAR.**—This is one of the most abundant birds found breeding on St. Matthew. On every cliff there were very large colonies. Among all the many thousands of birds seen here not one of the dark phase was noted. The single white egg is placed on any kind of a ledge which is large enough for the bird to sit upon.

***Phalacrocorax pelagicus robustus*. VIOLET-GREEN CORMORANT.**—No other Cormorants except this species were found on the reservation although a careful lookout was kept for the Red-faced. Nests were found on almost every cliff and they were especially abundant about the south

end of Hall Island. Here they could be reached without a rope. Young had appeared in a few nests and were ready to hatch in most of the others, yet an egg was taken from a bird killed July 8. This egg was light blue in color, almost devoid of the usual chalky deposits found on most specimens.

The nests are rather capacious affairs constructed of grass and moss from the tablelands above the cliffs, and are very dirty. I believe the bird which sets on the eggs is fed to a certain extent by its mate because there were numerous balls of vomited flesh remains about many of the nests.

Dr. Leonhard Stejneger (Bull. 29, U. S. Nat. Mus., pp. 181-191, Pl. VIII, 1885) has given excellent figures and descriptions, based on external characters, for separating the immature birds of the Pelagic Cormorant from the Red-faced, but nevertheless individual birds are very hard to determine in the field.

Anas platyrhynchos. MALLARD.—A party from the ship reported that a pair of Mallards was seen on July 8, about the lakes on the spit connecting Cape Upright with the main portion of St. Matthew. The birds were well described and I do not hesitate to include the species among the casual breeders although it was not subsequently seen.

Mareca penelope. EUROPEAN WIDGEON.—This species is included in the list solely upon a single wing found in a cabin near Cape Glory of Russia. It had been nailed up for an ornament and possibly may have been brought from elsewhere. It certainly is not a breeding bird on the reservation.

Nettion carolinense. GREEN-WINGED TEAL.—As with the preceding species some wings nailed to the walls of the old trapper's cabin are the basis of the record. They were probably taken on St. Matthew during migration. I did not find any evidence of breeding. These wings may have come from *Nettion crecca* as that is the breeding Teal found in the Aleutian Islands.

Harelda hyemalis. OLD-SQUAW.—A very few breed in the fresh water lakes.

Histrionicus histrionicus pacificus. PACIFIC HARLEQUIN DUCK.—Only one small flock was seen. It was near the beach of Hall Island July 13. [Included under *H. histrionicus* in the A. O. U. Check-List.]

[**Somateria v-nigra.** PACIFIC EIDER.—A female individual was secured on July 15, 1899. (A. K. F.)]

Somateria spectabilis. KING EIDER.—This bird was found to be abundant in all lakes which were near the sea. Many of the lakes had only gravel spits separating them from salt water and regular flights back and forth over these were made. Many of the birds were paired and were evidently nesting but eggs were not found. No other Eider appears to visit the reservation in the breeding season.

Olor columbianus. WHISTLING SWAN.—From two to four swans were found about the fresh water lakes at every landing place and while no specimens were obtained I do not doubt the species was the whistling. All were very wary and the country offered poor facilities for stalking. No positive evidence of breeding was found.

Grus canadensis. LITTLE BROWN CRANE.—One bird was seen back of a lake near the middle of the north shore of St. Matthew. At first it persistently stayed on top of the highest knolls but finally flew to a neighboring mountain.

Phalaropus fulicarius. RED PHALAROPE.—Two flocks in full summer dress were found feeding in the surf on the north shore of St. Matthew Island July 11. From June 8 to 14 while we were in the ice in the vicinity of St. Matthew thousands of these birds flew past the ship, headed north.

Lobipes lobatus. NORTHERN PHALAROPE.—This species breeds abundantly about all the fresh water lakes.

Arquatella maritima ptilocnemis. PRIBILOF SANDPIPER.—This is the most abundant bird of the level lands of the islands. Large numbers were in sight at every landing. Fresh eggs, and young birds running about in the grass and moss, were found. On the Pribilof Islands they nest on the highest parts of the islands and not commonly there, while on St. Matthew nearly all stay below 300 feet elevation. The males were beginning to resort to the margins of the lagoons in flocks by July 12.

Arenaria interpres oahuensis. PACIFIC TURNSTONE.—An adult male was found on Hall Island July 13. From its actions it appeared to have a mate and nest near by but they could not be found. It was not observed elsewhere on the reservation. [Included under *A. interpres* in the A. O. U. Check-List.]

Nyctea nyctea. SNOWY OWL.—No birds were seen but feathers were found lining the nests of McKay's Snow Buntings and several pellets containing rodent remains were found. These were so large that the identification of the species is practically certain.

[On Hall Island our party saw several adult Snowy Owls, one of which was killed. A nest found on July 14, 1899 contained four young the largest of which weighed twice as much as the smallest. Two Meadow Mice (*Microtus abbreviatus*), were found at the nest, and pellets contained the remains of Meadow Mice and birds. (A. K. F.)]

Corvus corax principalis. NORTHERN RAVEN.—About a dozen birds were observed on the mountainous Cape Upright end of St. Matthew and strangely individuals did not occur elsewhere. They were high up on the rocky sides of the mountains, apparently eating the crow berries of the year before. Here they would utter notes not unlike the yelp of the white foxes. Indeed the two were so much alike that I was mistaken in the source of the sound for some time. It seems strange that this species has never become established on the Pribilof Islands while it lives everywhere else around Bering Sea.

Leucosticte griseonucha. ALEUTIAN ROSY FINCH.—A few birds nest about most of the cliffs but they are much less common than on the Pribilof Islands.

Acanthis linaria linaria. REDPOLL.—A flock of four flew high overhead while we were on top of one of the bald domes in the center of the island of St. Matthew. They probably do not breed but flocks may fly over at any time as on the Pribilofs.

Plectrophenax hyperboreus. MCKAY'S SNOW BUNTING.—Next to the Pribilof Sandpiper this is the most abundant bird of the level lands. It was most common along the shingle beaches where it nested in old hollow drift logs. One nest was found in an old hollow spruce which had been excavated by some woodpecker on the mainland when the tree was standing. A few birds were found to the tops of the highest mountains. Flying young and fresh eggs were found, indicating that two broods are reared. No other Snow Bunting was obtained and it is not believed that any other resides on the reservation in summer.

Calcarius lapponicus alascensis. ALASKA LONGSPUR.—The Longspur breeds abundantly on the lower parts of the islands. One nest was found loosely constructed of sedges and lined with a few feathers. It contained six eggs. On June 12 an adult male came aboard the ship while we were in the ice and stayed all day. It seemed very fond of cracked hominy.

Passerculus sandwichensis alaudinus. WESTERN SAVANNAH SPARROW.—One was flushed on Hall Island on July 13 but was not secured. Another spent the day aboard the ship while we were in the ice south of St. Matthew June 10. If it breeds at all it is very rare.

Budytes flavus alascensis. ALASKA YELLOW WAGTAIL.—A pair, (apparently from a nest), was found on Hall Island July 13. They were much disturbed at my presence and flew back and forth over my head for half an hour before descending into gun range. It doubtless breeds but rarely.

NESTING OF THE CAPE MAY WARBLER AT LAKE EDWARD, QUEBEC.

H. F. MERRIAM.

LAKE EDWARD lies in the Laurentian hills one hundred miles north of the city of Quebec. Since the great forest fire some twelve years ago a growth of birch, alder and briars has sprung up and a comparatively small part of the country is still covered with the original spruce and balsam. In these restricted areas are to be found in abundance many of those Warblers which find their summer homes in coniferous woods. The islands in the lake are within this class, being wooded for the most part with spruce and balsam of moderate size interspersed with large white and yellow